# EXAMINATION SCORES: PREDICTION USING ARTIFICIAL NEURAL NETWORK (ANN)

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# ABSTRACT

This paper presents a model for predicting the final examination scores using an artificial neural network. The scope of this paper is to distinguish the components affecting the performance of students in final examinations and to predict the grade in the final examination. A sample of 112 students from the Faculty of Electrical Engineering, UiTM Shah Alam who have attempted at least once for the Power Engineering course was tested and trained. The students' assessments were used as the inputs to train the ANN model. The code was written and executed using MATLAB format. A method of Levenberg-Marquardt and Gradient Descent were used as a training algorithm and the performances were compared in term of accuracy. The results showed that the model is able to correctly predict the examination score with an accuracy of 94.06%.

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# CHAPTER ONE
# INTRODUCTION

## 1.1 Research Background

Through our many public universities, prospects for better education are growing [1]. Students who have the opportunity to receive higher education at any public university through Malaysia receive government scholarships and are therefore decided by national policies. A couple of years ago, the number of students enrolling in public universities in the first degree was 157,889 and the number of graduates created was 32,924 [2]. It is well known that the graduates ' standard is often assessed by their class degrees or the final grades received in proportion to the achieved Cumulative Grade Point Average (CGPA) [3].

Student performance in higher learning institutions is an essential part. This is because its good record of academic achievements is based on the criteria for a high-quality university. Given the large volume numbers of data in educational databases, predicting students' success becomes more difficult [5]. Right now in Malaysia the absence of an existing framework to investigate the student progress and execution is not being tended to. The explanation for this is that the research on the current prediction system is still inadequate to determine the most appropriate method to forecast student performance in Malaysia.

However, it is necessary to estimate student performance to make sure that students continue to deliver good results in an exam [6]. This is because students who have problems with a particular subject can be recognized by predicting the performance of the educator. Examinations have been used throughout the learning process to help educators assess how to know the student understands the subject [7]. In this way, researchers have worked over the past four decades to predict individual or group success throughout the courses for evaluation [8]. By specific standards, we can identify and help improve students who are having difficulties with the courses early [8]. While more frequent assessments will increase student final grades, provide better information on student learning and help in awarding a grade, further testing requires more time for the teacher to plan and mark them [9]. Through course work offered through lecturers such as tests, quizzes, and assignments, it is reasonable to predict